

ABSTRACT

A semiconductor device is disclosed. The semiconductor device has a crystalline silicon film as an active layer region. The crystalline silicon film has needle-like or columnar crystals oriented parallel to the substrate and having a crystal growth direction of (111) axis. A method for preparing the semiconductor device comprises steps of adding a catalytic element to an amorphous silicon film; and heating the amorphous silicon film containing the catalytic element at a low temperature to crystallize the silicon film.